

Docket: 3816.09

March 8, 2006 (10:38am)

### Amendments to the Claims

1. (Currently amended) A method of joining two silicon parts along respective joining areas, comprising the [step] steps of:  
providing a flowable mixture of a silicon powder and a silica bridging agent;  
applying said flowable mixture to at least one of said joining areas;  
assembling said two silicon parts with said respective joining areas in juxtaposition; and  
annealing said assembled parts at an annealing temperature sufficient to convert said silica bridging agent to a silica network.
2. (Previously presented) The method of Claim 1, wherein said annealing temperature is at least 400°C.
3. (Previously presented) The method of Claim 2, wherein said annealing temperature is between 900°C and 1100°C.
4. (Previously presented) The method of Claim 2, wherein said annealing temperature is at least 1200°C.
5. (Previously presented) The method of Claim 4, wherein said annealing temperature is at least 1300°C.
6. (Previously presented) The method of Claim 1, wherein said silicon powder comprises virgin polysilicon.
7. (Previously presented) The method of Claim 1, wherein said silicon powder has a size of less than 100µm.

Docket: 3816.09

March 8, 2006 (10:38am)

8. (Previously presented) The method of Claim 7, wherein said size is between 1 and 50 $\mu$ m.
9. (Previously presented) The method of Claim 1, wherein said silicon powder has a size distribution with a median size in a range of 10nm to 25nm.
10. (Previously presented) The method of Claim 1, wherein said silicon powder has a size distribution with at least 99% of particles having a size of less than 100nm.
11. (Previously presented) The method of Claim 1, wherein said silicon powder is formed by a CVD process creating particles of silicon.
12. (Previously presented) The method of Claim 1, wherein said silica bridging agent comprises a silicone-containing material.
13. (Previously presented) The method of Claim 1, wherein said silica bridging agent comprises a spin-on glass.
14. (Previously presented) The method of Claim 13, wherein said flowable mixture consists of said spin-on glass and said silicon powder.
15. (Previously presented) The method of Claim 14, wherein said silicon powder has a size distribution with at least 99% of particles having a size of less than 100nm.
16. (Previously presented) The method of Claim 13, wherein said flowable mixture further comprises a retardant to slow setting of said silica bridging agent at room temperature.
17. (Previously presented) The method of Claim 16, wherein said silica bridging agent comprises a spin-on glass and said retardant comprises an alcohol including less than 1% water.

Docket: 3816.09

March 8, 2006 (10:38am)

18. (Previously presented) The method of Claim 1, wherein said parts form part of a wafer support fixture.

19-32. (Canceled)

33. (Previously presented) The method of Claim 1, wherein said two silicon parts are bonded together through the silica network after the annealing step.

34. (Currently amended) A method of joining two silicon parts along respective joining areas, comprising:

providing a flowable mixture of a silicon powder and a glass-forming silica bridging agent;

applying the flowable mixture to at least one of the joining areas;

assembling said two silicon parts with said joining areas being opposed to each other; and

heating the assembled parts to an elevated temperature sufficient to convert the glass-forming silica bridging agent into a glass bonded to both of the joining areas.

35. (Currently amended) The method of claim 34, wherein ~~the glass comprises a silicate glass~~ the silicon parts comprise no more than 5 wt% of non-silicon elements.

36. (Currently amended) The method of claim 34, wherein the glass-forming silica bridging agent comprises a silica spin-on glass.

37. (Previously presented) The method of claim 34, wherein the silicon powder has a size distribution with at least 99% of the particles having a size of less than 100nm.

38. (New) The method of claim 1, wherein the silicon powder includes no more than 2.5 at% oxygen.

Docket: 3816.09

March 8, 2006 (10:38am)

39. (New) The method of claim 1, wherein at least one of the silicon parts is grown by chemical vapor deposition.

40. (New) The method of claim 1, wherein the silicon parts consist essentially of silicon.

41. (New) The method of claim 1, wherein the silicon parts include no more than 5 wt% of non-silicon elements.

42. (New) The method of claim 1, wherein the annealing temperature is at least 1000°C and is less than 1300°C.

43. (New) The method of claim 1, wherein the flowable mixture is a liquid which is applied to the at least one of said joining areas.

44. (New) A method of joining two silicon parts along respective joining areas, comprising the steps of:

providing a mixture of a powder consisting essentially of silicon and a chemical which when annealed to an annealing temperature vitrifies to form a silicate glass;

applying the mixture to at least one of the joining areas;

assembling the two silicon parts with the respective joining areas in juxtaposition; and

annealing the assembled parts at the annealing temperature to thereby bond the parts together.

45. (New) The method of claim 44, further comprising a liquid into which the mixture is mixed prior to be applied to the at least one of the joining areas.

46. (New) The method of claim 44, wherein the silicon parts comprise no more than 5 wt% of non-silicon elements.